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BIBLIOGRAPHY AND INDEX OF  
NAVAL APPLIED SCIENCE LABORATORY  
TECHNICAL REPORTS ON HIGH STRENGTH STEELS

Lab. Project 9300-1, Progress Report 5

Task Area SF-020-01-01, Work Unit 0722

Task Area SF-020-01-02, Work Unit 0855

Task Area SF-013-03-02, Work Unit 2025

14 FEBRUARY 1967

F. Ginsberg

I. L. Stern

# TECHNICAL REPORT

U. S. NAVAL APPLIED SCIENCE LABORATORY

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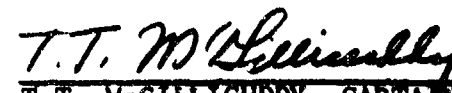
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PREFACE

1. In connection with its development work on high strength steels, the U.S. Naval Applied Science Laboratory has issued reports covering a broad range of information pertinent to fabrication of steels in the 80,000 to 210,000 psi yield strength range, with emphasis on HY-80 and HY-130 steel weldments.
2. The work represented by these reports is concerned with the transfer of basic laboratory data to production applications. Primary areas of concern are weldability, welding procedures and materials, static and dynamic mechanical properties (including large scale fatigue), explosion bulge properties, forming, stress relieving and residual stress measurements.
3. To facilitate utilization of the data developed, the information has been arranged as follows:
  - a. A bibliography containing a listing of reports by title and date and a short description of content.
  - b. A detailed subject index.
  - c. Identification of commercial activity participants, when applicable.
4. This document was prepared with the contract assistance of the Engineering Societies Library of New York, New York.

Lab. Project 9300-1  
Progress Report 5

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### REPORTS DATED 9/63 TO 9/65 (9300 SERIES)

9300-1

#### Technical Memorandums

- TM 1                      9/11/63  
HY-80 Submerged Arc Weldment, Lincoln Experimental A309 Flux and  
LL 1 Wire. Test of Explosion Bulge.  
Evaluation of experimental submerged arc wire and flux by  
mechanical and explosion bulge data.
- TM 2                      10/17/63  
Effect of Embrittled 110-18 Weld Metal on the Fatigue Life of HY-80  
Steel Butt Weldments.  
Effects of welding on the fatigue properties of HY-80.
- TM 3                      11/5/63  
Short Arc M. I. G. Vertical Position Welding of 2" HY-80 Steel.  
Evaluation of weldments fabricated by the M. I. G. short arc  
out of position welding process by explosion bulge and other  
related metallurgical and mechanical test data.
- TM 4                      11/12/63  
Comparison of Explosion Bulge Properties of 110-18 Weldments in  
STS and HY-100 Steels.  
Investigation of properties of weldments in STS and HY-100  
steel plate by explosion crack starter and bulge tests.
- TM 5                      12/11/63  
Semi-Automatic Inert-Gas Metal Arc (MIG) Welding of HY-80, Linde  
103 Filler Wire.  
Investigation of mechanical and explosion crack starter and  
bulge properties of "Linde 103" semi-automatic inert gas metal  
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- TM 6                      11/26/63  
Effects of Residual Stresses on the Structural Performance of Ex-  
truded and Cold Formed HY-80 Steel Tee Bars.  
Determination of effects of residual stresses developed during  
fabrication on structural behavior of cold-formed and welded  
HY-80 structural members.
- TM 7                      1/6/64  
Effects of Fatigue on the Explosion Bulge Properties of HY-80 Butt  
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Determination of effects of fatigue on explosion bulge per-  
formance of HY-80 steel weldments.

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- TM 8                      1/30/64  
Weldability of I-N 100 (135,000 PSI YS) Structural Steel.  
Investigation of base plate and weldability of I-N100.  
Includes composition, mechanical and Charpy-V notch data.
- TM 9                      2/13/64  
Explosion Crack Starter Survey, CVA 66, 70 # STS Deck Weldments.  
Comparison of explosion crack starter and Charpy V-notch  
properties of weldments from various stages of construction  
of the CVA 66 flight deck.
- TM 10                     6/1/64  
Comparison of Properties of 110-18 Weldments in STS and HY-100  
Steel.  
Tensile, Charpy V-notch, explosion crack starter and bulge data.
- TM 12                     8/7/65  
"Narrow Gap" Welds in 2" HY-80 Steels.  
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- TM 13                     7/27/64  
Investigation of the HP 150 Steel-Filler Wire System for High  
Strength Steel Fabrication.  
Explosion bulge, Charpy-V notch, drop weight and tensile data.
- TM 14                     9/10/64  
Effects of Forming on the Structural Performance of Cold-Formed  
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Effects of cold forming (residual stress, etc.) on structural  
performance of rolled tee sections and welded assemblies.
- TM 16                     8/11/64  
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graphic examination.
- TM 17                     10/15/64  
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- TM 18                     9/30/64  
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Fatigue data on ground and "shot-peened" tee fillet welded plate  
type specimens.
- TM 19                     12/14/64  
Fatigue of Iron Base Al. ys, HY-80, Cast Tees Butt Welded to  
Rolled Section Single and Double Weld Joint Design.  
Fatigue data on HY-80 steel cast tees butt welded to rolled  
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- TM 20 10/2/64  
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- TM 21 11/10/64  
Investigation of the 12% Nickel Maraging Steel Filler Wire.  
Weldability of 12% nickel maraging steel alloy.
- TM 22 11/25/64  
Properties of 130,000 to 150,000 PSI Yield Strength Weldments  
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- TM 23 12/17/64  
Welding Procedures for HY-100 Steel.  
Explosion bulge, Charpy V-notch and tensile test data.
- TM 24 1/18/65  
Effect of the NASL Mechanical Peening Technique on the Nil-Ductility  
Transition Temperature of HY-80 Steel and MIL-110-18 Weld Deposit.  
Drop weight data on mechanically peened steel plate and weld  
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- TM 25 1/22/65  
Short Arc MIG, Out-of-Position Welding of HY-80 Steel.  
Charpy V- and tensile data on base plate and weldment.
- TM 26 2/2/65  
Effect of Welding on the Fatigue Properties of HY-100 Steel Tee-  
Fillet Welded Plates in As-Welded Condition.  
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- TM 27 5/25/65  
Effects of Forming on Structural Performance of Cold-Formed HY-100  
Rolled Steel Tee-Bars.  
Effect of cold forming on structural performance in as-formed,  
stress-relieved and welded conditions.
- TM 28 3/2/65  
HY-180/210 Steels; Investigation of HP 9-4-25 Weld Deposit.  
Charpy V- and transverse weld tensile data.
- TM 29 4/1/65  
Comparative Weldability of Various 50,000 to 150,000 PSI Yield  
Strength Steels--Controlled Thermal Severity (CTS) Test.  
Utilizing the CTS test to predict susceptibility to thermal  
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Technical Memorandums (cont'd)

- TM 30                      6/2/65  
HY-180/210 Steels; Investigation of HP 9-4-25 and 7½Ni-4Co-Cr,  
Mo Weld Deposits.  
Evaluation of weldments based on tensile and Charpy V-notch  
data. Also soundness by radiographic examination.
- TM 31                      6/14/65  
Effect of Welding on the Fatigue Properties of HY-100 Steel  
Tee-Fillet Welded Plates Mechanically Peened.  
Fatigue data at various stress levels of welds treated by NASL  
mechanical peening process.
- TM 32                      7/9/65  
Exploratory Approach for Determination of Susceptibility to En-  
vironmental Stress Cracking of High Strength Alloys.  
Environmental stress corrosion screening test method for de-  
termining susceptibility to stress corrosion cracking in high  
strength metals.
- TM 33                      6/28/65  
Effect of Stress Relieving on the Toughness (Charpy V) and  
Mechanical Properties of HY-100 Steel Tee Beams, Hot Rolled,  
Extruded and Cold Formed.  
Effects of stress-relieving on yield strength and Charpy  
V-notch characteristics.
- TM 34                      8/11/65  
NASL Mechanical Peening Procedure for Improvement of Fatigue  
Properties of HY-80 Butt Welds.  
Influence of mechanical peening on fatigue life of HY-80 butt  
weld; explosion bulge data of peened butt weld subjected to  
bending fatigue.
- TM 35                      6/25/65  
Development of the NASL Circular Fillet Weldability (NCFW) Test.  
NASL circular fillet weldability test (NCFW) with preliminary  
results on naval structural steels (HY-80, STS, HY-130/150).
- TM 36                      6/29/65  
HY-180/210 Steels, Explosion Bulge Testing of 9Ni-4Co Type Steel  
Alloy Weldments.  
Explosion bulge, Charpy V-notch, and tensile data on 9Ni-4Co  
alloy steel weldment produced by automatic TIG welding process.
- TM 37                      10/14/65  
Effects of Forming on Structural Performance of Cold-Formed HY-100  
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Technical Memorandums (cont'd)

TM 37 8/31/65

Effect of the NASL Mechanical Peening Process on the Properties of HY-80/MIL-110-18 Weldments.

Evaluation of effect of NASL mechanical peening process on drop weight, hardness and ductility.

TM 39 9/16/65

Crack Growth Properties of Welds in HY-80, HY-100 and HY-130/150 High Strength Steels in a Sea Water Environment.

Experimental work performed on welded high strength steel plate subjected to corrosive effects of sea water under cyclical and static loading.

TM 40 12/13/65

Fatigue Life of HY-130/150 Steel Base Plates.

Fatigue data on HY-130/150 base plate tested at a nominal stress range of 0 to 140,000 psi in flexure.

TM 41 5/31/66

MIG and TIG Welding of HY-130/150 Steels (As Welded and Stress Relieved Weldments).

Data on Charpy V-notch, yield strength, hardness and side bends of weldments. Also effects of stress relief on toughness.

TM 42 6/1/66

Procedures for MIG Welding HY-130/150 Steels.

Mechanical and explosion bulge properties of weldments produced with MIG filler wires.

TM 43 6/14/66

Investigation of Fatigue Life of HY-130/150 Steel.

Fatigue data on 130/150 base plate tested at nominal stresses of 0 to 120,000 psi and 0 to 100,000 psi in flexure.

TM 44 6/17/66

Exploratory Approach for Screening High Strength Steels for Susceptibility to Environmental Stress Cracking.

Slow bend test on fatigue cracked Charpy V-notch specimen for determination of susceptibility to environmental stress cracking.

TM 45 7/5/66

Investigation of Applicability of Pulsed Arc Process for Welding HY-80 and HY-130/150 (5% Ni) Steel Alloys.

Explosion bulge, Charpy V-notch, tensile and bend data on weldments produced by pulsed arc welding process.

TM 46 7/1/66

An Optical Autocollimation Method for Evaluation of Stress-Relief Treatments for High-Strength Steel Weldments.

Exploration of approach to measurement of dimensional changes and distortions produced by welding and determination of dimensional stability obtained by thermal stress relief treatments.

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- TM 47                      6/28/66  
Effects of Stress Relief on the Toughness of HY-130/150 Base Plate and Weld Metal.  
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- TM 48                      6/24/66  
HY-180/210 Steels, Explosion Bulge Testing of 9Ni-4Co Type Steel Weldment  
Explosion bulge, Charpy V-notch and tensile data on weldments produced by manual TIG welding process.
- TM 49                      8/11/66  
Weldability of HY-130/150 Steel Covered Electrodes.  
Study of cracking tendency of the HY-130/150 steel covered electrode system.
- TM 50                      8/22/66  
Investigation of 12% Nickel Maraging Steels and Filler Wire System for High Strength Steel Fabrication.  
Study of weldment properties obtained with various experimental 12% nickel maraging steels and filler wires.
- TM 51                      10/3/66  
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- TM 52                      9/2/66  
Procedures for Covered Electrode Metallic Arc Welding of HY-130/150 Steels.  
Determination of potential shipyard applicability of HY-130/150 steel-covered electrode system for fabrication of HY-130/150 steel hulls for surface ships and submarine applications.

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- PR1                      4/15/64  
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- PR2                      1/13/65  
Effect of Pickling on Notch-Toughness and Surface Pitting of HY-80/100 Type Steel Plate.
- PR3                      8/2/65  
Welding Electrodes for HY-100 Steel  
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PR 4 3/8/66

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TM 2 10/19/64

Fatigue of Structural Elements: Measurement of Residual Stresses at the Tee-Fillet Welds in HY-80 Steel.

TM 5 5/11/66

Fatigue of Structural Elements: Initial Studies on the Effect of Overstrain on Residual Stresses and Fatigue.

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PR 1 10/23/64

Development of a Welding Repair Procedure for Class I, Nickel-Molybdenum Steel Shafting.

Development of repair welding procedure for high strength, Class I, steel shafting with adequate static and fatigue properties.

PR 2 8/31/65

Weldability of Nickel Modified Hadfield Steel Chain Links.

Suitability of automatic flash butt welding nickel modified Hadfield steel chain links; development of manual welding procedure for field repairs.

REPORTS DATED PRIOR TO 9/63

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Final Report 12/27/62

Procedures for Minimizing the "As-Welded" Hardness of the Heat Affected Zones in Hardenable Steels.

Develop procedures for minimizing hardness in heat affected zones of welded joints.

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PR 1 9/9/59

Weldability and Fatigue Properties of HY-80 Alloy Structural Steel Plate.

Dynamic beam and hydrostatic plate fatigue properties. Also Charpy V-notch and tensile data.

PR 2 10/15/62

Effects of Various Weld Flaws on the Fatigue Properties of HY-80 Butt and Fillet Weld Assemblies.

Effects on fatigue properties of repairs in base plate, undercutting and lack of fusion and embrittlement in fillet welds.

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PR 1 9/9/59

Effect of Welding on the Fatigue Properties of HY-80 Steel.  
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PR 2 4/15/60

Effects of Welding on Fatigue Properties of HY-80 Steel.  
Data on fatigue tests of tee-weld plate type specimens. Also ultrasonic, magnetic particle inspection and microscopic examination.

PR 3 7/17/61

Effect of Welding on the Fatigue Properties of HY-80 Steel.  
Fatigue studies on tee-fillet and butt-welds. Also data on effects of corrosion on fatigue life of tee-fillet welded specimens.

PR 4 4/23/62

Properties of HY-80 Steel; Virgin Plate-Report on Fatigue of.  
Fatigue studies at various stress levels. Also tensile and Charpy V-notch data.

PR 5 12/17/62

Effects of Welding on the Fatigue Properties of High Yield Strength Steels; British QT-35 Tee Fillet Welded Plate-Report on Fatigue.  
Data on fatigue studies of British QT-35 steel tee fillet welded plates; comparison with tee-fillet welded HY-80 plate.

PR 6 1/3/63

Fatigue of Iron Base Alloys--Tee-Fillet Welds in HY-80 Plate  
Fatigue Tested in Compression.  
Data on specimens investigated at 4 stress levels--40,000, 50,000, 60,000 and 70,000 psi, fatigue tested in compression in the fillet welds.

PR 7 6/28/63

Fatigue of Iron Base Alloys--HY-80 Steel, Cast Tee.  
Fatigue test data, cast tee, at various stress levels.

9/16/63

Fatigue of Iron Base Alloys--HY-80 Steel, Rolled Plate to Cast Plate Butt Welds; Peened Tee-Fillet and Ground Tee-Fillet Welds.  
Fatigue test data, rolled plate to cast plate butt welds at various stress levels; also data on shot peened and on ground tee-fillet welded plate type specimens.

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PR 1 3/21/63

Effects of Residual Stresses on the Structural Performance of Extruded and Cold-Formed HY-80 Steel Tee Bars.

Utilizing Bauschinger effect to determine effects of residual stresses on behavior of cold-formed and welded HY-80 steel.

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Final Report 9/21/62

"Blast-Steel"; Wheelabrator Corporation, Mishawaka, Indiana, Pre-Weld Primer for HY-80 Steel.

Investigation to determine if satisfactory welds can be obtained in HY-80 steel without removal of pre-weld primer.

6285-1

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PR 1 9/9/62

HY-80 and HY-100 Steels, Weldability of.

Hardness gradients and microstructures of joints; 40,000 and 80,000 joules/in. heat input; material untreated and with rare earth additions.

PR 2 5/19/61

HY-80 (Spec. MIL-S-16216); Determination of Effects of Weld Fabrication Variables on Mechanical Properties of Weldments.

Crack starter explosion tests on welds with various interpass temperatures and heat inputs.

6285-3

Final Report 4/13/61

Mechanical Properties of Iron Alloys--Explosion Bulge Tests of Weldments Fabricated with Heat Treatable Electrodes.

Assemblies welded by Lukens Steel Co., mechanical and explosion bulge data.

6285-4

Final Report 4/4/61

Weldability of Cast HY-80 Steel.

Mechanical and explosion (crack-starter and conventional bulge type) test data.

6285-5

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Explosion Bulge Properties of HY-80 Steel Assemblies Fabricated by the Electro-Slag Welding Process.

Explosion bulge data on electro-slag weldments of HY-80.

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Explosion Bulge Performance and Mechanical Properties of HY-80 Weldments Fabricated by the Electro-Slag Process.

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PR 1 5/1/61

STS Plating Welded with Grade 260 Electrode, Explosion Evaluation of.  
Estimate the "FTE" temperature on the basis of crack starter  
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PR 2 7/6/61

Investigation of the Notch Toughness Properties of MIL 260 Welds  
in STS Plate.

Estimate the "FTE" temperature on the basis of crack starter  
explosion bulge data; also Charpy V- data.

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Final Report 5/25/62

Explosion Bulge Performance of 1" HY-80 Weldments Fabricated by  
the Submerged Arc Process.

Explosion bulge and crack starter data.

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Final Report 9/27/61

70# STS Plate Welded with Grade 110-18 Electrodes, Explosion Bulge  
Properties of.

Explosion crack starter and Charpy V-notch data on STS weldments.

6285-9

Final Report 9/27/61

Notch Toughness Properties of Welds in Flight Deck of the CVA-63  
(Kitty Hawk).

Charpy V-notch data of MIL-260 type welds selected from flight  
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6285-10

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Explosion Bulge Performance of 2" HY-80 Weldments Fabricated in  
the Vertical Position by MIG Process.

Weldments from Air Reduction Co.; explosion bulge and Charpy  
V- data.

6285-11

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Forged HY-80 Steel, Isaacson Iron Works, Seattle 24, Washington,  
Explosion Bulge Testing of Preproduction Samples of.

Explosion bulge, Charpy V- data study of weldability.

6285-12

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PR 1 10/27/61

70# STS Weldments, Explosion Bulge Tests of.

Notch toughness properties as determined by crack starter ex-  
plosion data. Heat input restricted to 50,000 joules/in. max.

6285-12

Final Report 2/21/62

Notch Toughness Properties of 70% STS Weldments by Explosion  
Crack Starter Tests.

Study of procedure utilizing changes in joint design, electrode  
type and rate of heat input for use in carrier construction  
programs.

6285-13

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Cast HY-80 Steel Plates, American Brake Shoe Co., Mahwah, N. J.,  
Mfr., Preproduction Testing of.

Explosion bulge and related small scale mechanical test data.

6285-14

Final Report 3/6/62

Cast HY-80 Steel, Birdsboro Corp., Birdsboro, Pa., Mfr., Explosion  
Bulge Test of Preproduction Samples of.

Crack starter, explosion bulge, Charpy V-notch, tension and  
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6285-14A

Final Report 2/27/63

Cast HY-80 Steel Plates, Birdsboro Corp., Birdsboro, Pa., Mfr.,  
Preproduction Testing of (WT-603).

Tensile, Charpy V-, NDT, and explosion crack starter and bulge  
test data.

6285-15

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British Steel QT 35 Weldments, Explosion Bulge Testing of.

Explosion crack starter, drop-weight, tensile, and Charpy  
V-notch data.

6285-16

Final Report 8/30/62

1 1/4" Experimental HY-1 Steel Plate, Explosion Bulge (Crack  
Starter) Performance of.

Explosion crack starter data on quenched and tempered material.

6285-17

Final Report 6/28/63

HY-80 Submerged Arc Weldments Fabricated with Experimental Flux  
L-732 and Experimental Filler Wire 14N, Battelle Memorial Insti-  
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Explosion bulge data on material in as-welded and in stress  
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6285-18

Progress Report

PR 1 1/30/62

2" Thick Forgings of HY-80 Steel--Midvale Heppenstall Co., Pre-  
production Test of Weldments in.

Crack starter, conventional explosion bulge, drop-weight and  
Charpy V-notch data on welded forged or rolled plate assemblies.

6285-19

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Charpy V-notch and drop-weight data.

6285-19A

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High Strength Steel, Cast HY-80 Steel Plates, Preproduction Testing of (The Bonney-Floyd Co., Columbus, Ohio).

Drop-weight and Charpy V- data; also tension test data.

6285-20

Final Report 6/28/62

HY-80 Submerged Arc, Flux (Unionmelt 103) and Electrode Oxyweld 103, Linde Co., N. Y., 17, N. Y., Exhibitor, Explosion Bulge Tests of.

Data on explosion crack starter, explosion bulge and Charpy V-notch.

6285-21

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Steel, Alloy, Shapes, Hot Rolled (HY-80), Bethlehem Steel Co., Bethlehem, Pa., Exhibitor, Explosion Bulge Tests of.

Explosion crack starter, bulge and related small scale test data.

6285-22

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Forging, Steel, HY-80, Ladish Co., Cudahy, Wisconsin, Exhibitor, Explosion Bulge Testing of Preproduction Samples.

Data on explosion bulge, explosion crack starter, tensile, Charpy V- and drop-weight tests.

6285-23

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PR 1 5/4/62

HY-80 Extrusions Manufactured by Curtiss Wright Metal Processing Division, Investigation of Weldability of.

Data on drop-weight, Charpy V-notch (longitudinal and transverse), and tension tests.

PR 2 8/6/62

Extrusions, HY-80 Steel, Atlas Welland Co., Welland, Ontario, Canada, Supplier of Cast Billet; Curtiss Wright Corp., Metals Processing Division, Buffalo, N. Y., Extruder; Explosion Bulge Tests of (WT 603).

Explosion bulge, drop-weight, tensile and Charpy V-notch data.

6285-23

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Extrusions, HY-80 Steel, Curtiss Wright Corp., Extruder, Explosion Bulge Tests of (WT 603).

Weldability of extrusions as determined by explosion bulge, Charpy V-notch.

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5/27/63

High Strength Steel, Rolled HY-80 Steel Plates, Sheffield Division, Armco Steel Corp., Houston, Texas, Mfr.; Preproduction Testing of.

Data on mechanical properties, Charpy V-notch, and drop-weight.



6285-25

Final Report 7/24/63

High Strength Steel, HY-100; Weldability of 2" Thickness Rolled Plate (Armco-Sheffield Steel).

Tensile, Charpy V-notch, drop-weight, explosion crack starter and explosion bulge data.

6285-26

Final Report 3/5/63

Cast HY-80 Steel Plates, Lebanon Steel Foundry, Lebanon, Pa., Mfr.; Preproduction Testing of (WT-603)

Mechanical properties and Charpy V-notch, drop-weight, explosion crack starter, and explosion bulge data.

6285-27

Final Report 5/28/63

High Strength Steel, HY-80 Steel Extrusion, Curtiss Wright Corp., Metal Processing Division, Buffalo, N. Y., Extruder; Preproduction Testing of (WT-603)

Mechanical, Charpy V-notch, drop-weight and explosion crack starter and bulge properties.

6285-28

Final Report 3/6/63

Cast HY-80 Steel Plates, Standard Steel Works, Burnham, Mifflin County, Pa., Mfr.; Preproduction Testing of (WT-603)

Mechanical properties and Charpy V-notch, drop-weight and explosion crack starter and explosion bulge data.

# S U B J E C T I N D E X

(Note: TM = Technical Memorandum; PR = Progress Report; FR = Final Report)

A405 (Linde) see SHIELDING GAS -- A405 (LINDE)

A632 see ELECTRODES -- A632

## AGING

9300-1 TM21 12% nickel maraging steel-filler wire system  
9300-1 TM50 12% nickel maraging steels : Filler wire system

Air corrosion see CORROSION (AIR)

## ANNEALING

9300-1 TM21 12% nickel maraging steel-filler wire system

Argon shielding gas see SHIELDING GAS -- ARGON

## AUTOCOLLIMATION METHOD FOR MEASURING ANGULAR DISTORTION

9300-1 TM46 Optical autocollimation method : Stress-relief treatments : High-strength steel weldments

Automatic welding see WELDING -- AUTOMATIC

## BACKING STRAPS

6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate  
6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties  
6285-12 PR1 STS weldments : Explosion bulge tests  
6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

## BALDWIN, MODEL 120, STRAIN INDICATOR

9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars  
9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars

## BALDWIN, TYPE N, STRAIN INDICATOR

9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars  
9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80

## BALDWIN-SOUTHWARK UNIVERSAL TESTING MACHINE

9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions

## BAUSCHINGER EFFECT

9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars  
9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars

## BAUSCHINGER EFFECT (continued)

- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section  
extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel  
tee-bars
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 :  
Tee-bars

Bend machine, Manlabs slow see MANLABS SLOW BEND MACHINE, MODEL SB-750

BEND TESTS see also subdivision MECHANICAL PROPERTIES under various  
types of ELECTRODES and STEELS and under FILLER METAL and  
WELD DEPOSITS

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire :  
Explosion bulge
- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
- 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 :  
Tee-bars
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel  
tee-bars
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
Filler wire (LLR1)
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel  
tee-bars
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt  
welds
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM38 Peening : Properties : HY-80/MIL-11018 weldments
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high strength steels : Environmental stress  
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 :  
Tee-bars
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests :  
Heat treatable electrodes
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing

## BITHERMAL WELDS

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi  
yield strength steels : Controlled thermal severity (CTS) test

## "BLAST-SEEL" PRIMER

6160-7 FR "Blast-Seel" : Wheelabrator Corp.: Pre-weld primer :  
HY-80

Butt welding see WELDING PROCESSES -- FLASH BUTT

## BUTT WELDS

9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :  
Butt weldments

9300-1 TM3 Short arc MIG : Vertical position welding : HY-80

9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire

9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt  
weldments

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)

9300-1 TM9 Explosion crack-starter : CVA 66 : STS

9300-1 TM12 "Narrow-Gap" welds : HY-80

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section  
single and double weld joint design

9300-1 TM21 12% nickel maraging steel-filler wire system

9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
Filler wire (LLR1)

9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80

9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2 Ni-4Co-Cr, Mo weld deposits

9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt  
welds

9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments

9300-1 TM39 Crack growth properties : HY-80, HY-100, HY-130/150 :  
Sea water environment

9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved

9300-1 TM42 MIG welding : HY-130/150

9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type  
steel weldment

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 TM50 12% nickel maraging steels : Filler wire system

9300-1 TM51 Corrosion fatigue : Stress corrosion properties :  
HY-130/150

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

9300-1 PR3 Welding electrodes : HY-100

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting

6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and  
fillet weld

6160-2 PR3 Welding : Fatigue properties : HY-80

6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

## BUTT WELDS (continued)

6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee fillet : Ground tee fillet welds  
 6285-1 PR1 HY-80 and HY-100 : Weldability  
 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties  
 6285-4 FR Weldability : Cast HY-80  
 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate  
 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties  
 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)  
 6285-12 PR1 STS weldments : Explosion bulge tests  
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests  
 6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing  
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

CTS weldability test see CONTROLLED THERMAL SEVERITY (CTS)

## CVA-63 FLIGHT DECK

6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

## CVA-64 FLIGHT DECK

6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

## CVA-66 FLIGHT DECK

9300-1 TM9 Explosion crack-starter : CVA-66 : STS

Castings see STEELS -- HY-80, CAST; TEE-SECTIONS -- CAST

## CHAIN LINKS

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

CHARPY V-NOTCH see also subdivision MECHANICAL PROPERTIES under various types of STEELS, FILLER METAL, WELD DEPOSITS, ELECTRODES

9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge  
 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80  
 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)  
 9300-1 TM9 Explosion crack-starter : CVA-66 : STS  
 9300-1 TM10 Properties : 110-18 : STS : HY-100  
 9300-1 TM13 HP-150 steel-filler wire system  
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)  
 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions  
 9300-1 TM21 12% nickel maraging steel-filler wire system  
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (LLR1)  
 9300-1 TM23 Welding : HY-100  
 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80  
 9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit  
 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7/8 Ni-4Co-Cr, No weld deposits  
 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed

## CHARPY V-NOTCH (continued)

- 9300-1 TM41 MIG and TIG welding : HY-130/150 welds : As welded :  
Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress  
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
weld metal
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel  
weldment
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6285-3 FR Mechanical properties : In... alloys : Explosion bulge tests :  
Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding  
process
- 6285-5S FR Explosion bulge performance : Mechanical properties :  
HY-80 weldments : Electro-slag process
- 6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
- 6285-6 PR2 Notch toughness properties : MIL-260 welds : STS plate
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged  
arc process
- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge  
properties
- 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)
- 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical  
position : MIG process
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge  
testing
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion  
crack-starter tests
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests
- 6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode  
(Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion  
bulge tests
- 6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal-Processing Div. :  
Forged billet : Crucible Steel of Canada, Ltd.

#### CHARPY V-NOTCH (continued)

- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp., Metals Processing Division : Explosion bulge tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY-80 steel plates : Standard Steel Works

Chemical analysis see subdivision CHEMICAL ANALYSIS under types of ELECTRODES and STEELS and under FILLER METAL, TEE-SECTIONS, TITANIUM ALLOYS and WELD DEPOSITS

#### CIRCULAR FILLET WELDABILITY (NCFW) TEST

- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
  - 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
  - 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- Coatings see PRIMERS (COATINGS)

#### COLD FORMING

- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

Cold laps see WELDS -- FUSION INCOMPLETE

Cold working see COLD FORMING

#### COMPRESSION

- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression

#### CONTROLLED THERMAL SEVERITY (CTS)

- 9300-1 TM20 HY-130/150
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires

CORROSION (AIR)

- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150

Corrosion -- Environmental stress see STRESS CORROSION

Corrosion screening test, Environmental stress see ENVIRONMENTAL STRESS CORROSION SCREENING TEST

CORROSION (SEA WATER)

- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6160-2 PR3 Welding : Fatigue properties : HY-80

Corrosion -- Stress see STRESS CORROSION

Covered electrodes see ELECTRODES -- COVERED

Cracking -- Delayed see CRACKING -- RESTRAINT

CRACKING -- RESTRAINT

- 9300-1 TM35 NASL circular fillet weldability (NCFW) test

Cracking test, Environmental stress see ENVIRONMENTAL STRESS CORROSION SCREENING TEST; TEAR TEST

CRACKING -- THERMAL

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 PR4 Weldability: HY-130/150 steel and MIG filler wires

CURVED BEAMS

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

DATMOBAS hole drilling technique see STRESSES, RESIDUAL -- MEASUREMENT -- HOLE DRILLING METHOD



David Taylor Model Basin hole drilling technique see STRESSES, RESIDUAL --  
MEASUREMENT -- HOLE DRILLING METHOD

Delayed cracking see CRACKING -- RESTRAINT

Deposited metal see WELD DEPOSITS

#### DISCONTINUITY

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

#### DISTORTION MEASUREMENT

9300-1 TM46 Optical autocollimation method : Stress-relief treatments : High-strength steel weldments

#### DROP WEIGHT (NDT)

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit

9300-1 TM38 Peening ; Properties : HY-80/MIL-110-18 weldments

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-4 FR Weldability : Cast HY-80

6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plate : Birdsboro Corp.

6285-15 FR British steel QT-35 weldments : Explosion bulge testing

6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.

6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests

6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.

6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests

6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing

6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.

6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp., Metals Processing Division : Explosion bulge tests

6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

6285-28 FR Cast HY-80 steel plates : Standard Steel Works

Dynamic beam fatigue tests see FATIGUE TESTS -- DYNAMIC BEAM

Electric furnace melting see MELTING PROCESSES -- ELECTRIC FURNACE

ELECTRODES see also FILLER METAL; WELD DEPOSITS

ELECTRODES -- COVERED

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)  
 9300-1 TM23 Welding : HY-100  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test  
 9300-1 TM35 NASL circular fillet weldability (NCFW) test  
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes  
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150  
 9300-1 PR3 Welding electrodes : HY-100  
 6285-12 PR1 STS weldments : Explosion bulge tests

ELECTRODES -- ELECTRIC FURNACE MELTED CORE WIRE

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

ELECTRODES -- HEAT TREATABLE

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

ELECTRODES -- VACUUM INDUCTION MELTED CORE WIRE

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

ELECTRODES -- 14N

6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 : Experimental filler wire 14N : Battelle Memorial Institute

ELECTRODES -- 195W (NICKEL, CHROMIUM, MANGANESE)

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

ELECTRODES -- A632

6285-12 PR1 STS weldments : Explosion bulge tests  
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

ELECTRODES -- L-100

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)  
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

ELECTRODES -- L-100 -- CHEMICAL ANALYSIS

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

ELECTRODES -- L-103 OXWELD

9300-1 TM12 "Narrow-Gap" welds : HY-80

ELECTRODES -- LL1

9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge

## ELECTRODES -- LLR1

- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
Filler wire (LLR1)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test

## ELECTRODES -- LLR1 -- CHEMICAL ANALYSIS

- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
Filler wire (LLR1)

## ELECTRODES -- LINDE 103

- 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire

## ELECTRODES -- M188

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test

## ELECTRODES -- MIL-110-18

- 9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :  
Butt weldments
- 9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt  
weldments
- 9300-1 TM9 Explosion crack starter : CVA-66 : STS
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM12 "Narrow-Gap" welds : HY-80
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled  
section single and double weld joint design
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet  
welded plates
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt  
welds
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-23 TM5 Overstrain : Residual stresses : Fatigue
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting
- FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable  
steels
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-7 FR "Blast Seel" : Wheelabrator Corp. : Pre-weld primer : HY-80
- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical  
properties
- 6285-4 FR Weldability : Cast HY-80

## ELECTRODES -- MIL-110-18 (continued)

- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties
- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## ELECTRODES -- MIL-120-18

- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## ELECTRODES -- MIL-130-18

- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## ELECTRODES -- MIL-260

- 6285-6 PR1 STS plating : Grade 260 electrodes : Explosion evaluation
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

## ELECTRODES -- MIL-310

- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

## ELECTRODES -- MIL-8018

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

## ELECTRODES -- MIL-9018

- 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties

## ELECTRODES -- OXWELD 103

- 6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode (Oxweld 103) : Linde Co. : Explosion bulge tests

ELECTRODES --  $7\frac{1}{2}\%$ Ni-4Co

- 9300-1 TM30 HY-180/210 : HP 9-4-25 :  $7\frac{1}{2}\%$ Ni-4Co-Cr, Mo weld deposits

ELECTRODES --  $7\frac{1}{2}\%$ Ni-4Co -- CHEMICAL ANALYSIS

- 9300-1 TM30 HY-180/210 : HP 9-4-25 :  $7\frac{1}{2}\%$ Ni-4Co-Cr, Mo weld deposits

ELECTRODES --  $7\frac{1}{2}\%$ Ni-4Co -- MECHANICAL PROPERTIES

- 9300-1 TM30 HY-180/210 : HP 9-4-25 :  $7\frac{1}{2}\%$ Ni-4Co-Cr, Mo weld deposits

ELECTRODES --  $7\frac{1}{2}\%$ Ni-4Co-Cr, Mo

- 9300-1 TM30 HY-180/210 : HP 9-4-25 :  $7\frac{1}{2}\%$ Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing :  $9\%$ Ni-4Co steel alloy weldments

## ELECTRODES -- 12% NICKEL MARAGING

- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM50 12% nickel maraging steels : Filler wire system

## ELECTRODES -- 12% NICKEL MARAGING -- CHEMICAL ANALYSIS

9300-1 TM21 12% nickel maraging steel-filler-wire system

9300-1 TM50 12% nickel maraging steels : Filler wire system

Electro-slag welding see WELDING PROCESSES -- ELECTRO-SLAG

## EMBRITTLMENT

9300-1 TM2 Embrittled : 110-18 : Fatigue life : HY-80 : Butt weldments

6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet weld

Environmental stress corrosion see STRESS CORROSIONENVIRONMENTAL STRESS CORROSION SCREENING TEST see also TEAR TEST

9300-1 TM32 High-strength alloys : Environmental stress cracking

9300-1 TM44 Screening high-strength steels : Environmental stress cracking

Environmental stress cracking test see TEAR TESTExplosion bulge tests see EXPLOSION CRACK STARTER, BULGE

## EXPLOSION CRACK STARTER, BULGE

9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge

9300-1 TM3 Short arc MIG : Vertical position welding : HY-80

9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100

9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire

9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments

9300-1 TM9 Explosion crack-starter : CVA-66 : STS

9300-1 TM10 Properties : 110-18 : STS : HY-100

9300-1 TM12 "Narrow-Gap" welds : HY-80

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (LLR1)

9300-1 TM23 Welding : HY-100

9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds

9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments

9300-1 TM42 MIG welding : HY-130/150

9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

9300-1 PR3 Welding electrodes : HY-100

6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-4 FR Weldability : Cast HY-80 .

6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process

## EXPLOSION CRACK STARTER, BULGE (continued)

- 6285-5S FR Explosion bulge performance : Mechanical properties :  
HY-80 weldments : Electro-slag process
- 6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
- 6285-6 FR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged  
arc process
- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge  
properties
- 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical  
position : MIG process
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge  
testing
- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion  
crack-starter tests
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A FR Cast HY-80 steel plate : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)
- 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :  
Experimental filler wire 14N : Battelle Memorial Institute
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode  
(Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion  
bulge tests
- 6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. :  
Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet :  
Curtiss-Wright Corp. Metals Processing Division : Explosion bulge  
tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Process-  
ing Division : Isaacson Iron Works : Forged billet : Explosion  
bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals  
Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY-80 steel plates : Standard Steel Works

Extruded tee-sections see TEE-SECTIONS -- EXTRUDED

## FTE TEMPERATURE

- 6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge  
properties
- 6285-12 FR Notched-toughness properties : STS weldments : Explosion  
crack-starter tests
- 6285-16 HY-150 steel plate : Explosion bulge (crack-starter)

## FATIGUE

- 9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :  
Butt weldments
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt  
weldments
- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled  
section single and double weld joint design
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet  
welded plates
- 9300-1 TM31 Effect of welding : Fatigue properties : HY-100 steel  
tee-fillet welded plates mechanically peened
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt  
welds
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM43 Fatigue life : HY-130/150
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses : Fatigue
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet  
welds
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR2 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet  
welded plate
- 6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee
- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast  
plate butt welds : Peened tee-fillet : Ground tee-fillet welds

Fatigue pre-crack machine, Manlabs see MANLABS FATIGUE PRE-CRACK MACHINE,  
MODEL FCM-300B

## FATIGUE TESTS -- DYNAMIC BEAM

- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR1 Welding : Fatigue properties : HY-80

## FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled  
section single and double weld joint design
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet  
welded plates
- 9300-1 TM31 Effect of welding : Fatigue properties : HY-100 steel  
tee-fillet welded plates mechanically peened
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt  
welds

## FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE (continued)

- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties :  
HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM5 Overstrain : Residual stresses : Fatigue
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 tee-fillet  
welded plate

FILLER METAL see also ELECTRODES; WELD DEPOSITS

- 9300-1 TM23 Welding : HY-100
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
weld metal
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-1 PR4 Weldability: HY-130/150 steel and MIG filler wires

## FILLER METAL -- CHEMICAL ANALYSIS

- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type  
steel weldment
- 6285-5S FR Explosion bulge performance : Mechanical properties :  
HY-80 weldments : Electro-slag process

## FILLER METAL -- MECHANICAL PROPERTIES

- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged  
arc process

Filler wire see ELECTRODES; FILLER METALFILLET WELDS see also TEE-FILLET WELDS

- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)



## FILLET WELDS (continued)

- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150  
 6160-7 FR "Blast Seel" : Wheelabrator Corp. : Pre-weld primer :  
 HY-80

## FLAME CUTTING

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel  
 tee-bars  
 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel  
 tee-bars

Flash butt welding see WELDING PROCESSES -- FLASH BUTT

Flat position welding see WELDING POSITION -- FLAT

## FLUX

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire :  
 Explosion bulge  
 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged  
 arc process  
 6285-17 FR HY-80 submerged arc weldment : Experimental flux L-732 :  
 Experimental filler wire 14N : Battelle Memorial Institute  
 6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode  
 (Oxweld 103) : Linde Co. : Explosion bulge tests

Forgings see STEELS -- HY-80, FORGED

Forming see COLD FORMING

Fusion incomplete in welds see WELDS -- FUSION INCOMPLETE

Gas metal arc welding see WELDING PROCESSES -- MIG (METAL-INERT-GAS)

Gas -- Shielding see SHIELDING GAS

## GRINDING

- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments  
 9300-1 TM21 12% nickel maraging steel-filler wire system  
 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt  
 welds  
 9300-1 TM42 MIG welding : HY-130/150  
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150  
 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80  
 9300-23 TM5 Overstrain : Residual stresses : Fatigue  
 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast  
 plate butt welds : Peened tee-fillet : Ground tee-fillet welds

## GROOVE WELDS

- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge  
 tests : Heat treatable electrodes

## H-SECTIONS

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars

HAZ see HEAT AFFECTED ZONE (HAZ)

HP 9-4-25 see STEELS -- HY-180/210, WROUGHT

HP-150 see STEELS -- HP-150, WROUGHT

HTS see STEELS -- HTS, WROUGHT

HY-80 see STEELS -- HY-80

HY-100 see STEELS -- HY-100

HY-130/150 see STEELS -- HY-130/150

HY-150 see STEELS -- HY-130/150

Hadfield steels see STEELS -- HADFIELD, NICKEL MODIFIED

## HARDNESS

- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-13 weldments
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable steels
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80

## HARDNESS TESTS -- KNOOP

- 6285-4 FR Weldability : Cast HY-80

## HARDNESS TESTS -- ROCKWELL

- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

## HARDNESS TESTS -- VICKERS

- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80

## HEAT AFFECTED ZONE (HAZ)

- 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
- 9300-1 TM9 Explosion crack starter : CVA66 : STS
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- FSP-1 FR "As-welded" hardness : Heat affected zones : Hardenable steels
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 : Experimental filler wire 14N : Battelle Memorial Institute
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode (Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

Heat treatable electrodes see ELECTRODES -- HEAT TREATABLE

Heat treatment, Post-weld see POST-WELD HEAT TREATMENT

Hole drilling for measuring residual stresses see STRESSES, RESIDUAL -- MEASUREMENT -- HOLE DRILLING METHOD

Horizontal position welding see WELDING POSITION -- HORIZONTAL

Hydrostatic plate fatigue tests see FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

I-N 100 see STEELS -- I-N 100, WROUGHT

Impact testing machine see RIEHLE IMPACT TESTING MACHINE

Impact tests see CHARPY V NOTCH

## KEYHOLE SLOTTED PLATE RESTRAINT

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 PR4 Weldability: HY-130/150 steel and MIG filler wires

Knoop hardness tests see HARDNESS TESTS -- KNOOP

L-100 see ELECTRODES -- L-100

L-103 Oxweld see ELECTRODES -- L-103 OXWELD

LL1 see ELECTRODES -- LL1

LLR1 see ELECTRODES -- LLR1

Lan-Cer-Amp see RARE EARTH ADDITION (LAN-CER-AMP)

Linde 103 see ELECTRODES -- LINDE 103

Linde A405 see SHIELDING GAS -- A405 (LINDE)

Links, Chain see CHAIN LINKS

## LOW-MU PERMEABILITY INDICATOR

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

M188 see ELECTRODES-- M188

MIG welding see WELDING PROCESSES -- MIG (METAL-INERT-GAS)

MIG short arc welding see WELDING PROCESSES -- MIG SHORT ARC

MIL-110-18 see ELECTRODES -- MIL-110-18

MIL-120-18 see ELECTRODES -- MIL-120-18

MIL-130-18 see ELECTRODES -- MIL-130-18

MIL-260 see ELECTRODES -- MIL-260

MIL-310 see ELECTRODES -- MIL-310

MIL-8018 see ELECTRODES -- MIL-8018

MIL-9018 see ELECTRODES -- MIL-9018

Magnetic particle welding inspection see WELDING INSPECTION -- MAGNETIC  
PARTICLE

## MANLABS FATIGUE PRE-CRACK MACHINE, MODEL FCM-300B

9300-1 TM44 Screening high strength steels : Environmental stress  
cracking

## MANLABS SLOW BEND MACHINE, MODEL SB-750

9300-1 TM44 Screening high strength steels : Environmental stress  
cracking

Maraging steels see STEELS -- 12% NICKEL MARAGING, WROUGHT; ELECTRODES --  
12% NICKEL MARAGING

Mechanical properties see BEND TESTS; CHARPY V NOTCH; TENSILE PROPERTIES;  
also subdivision MECHANICAL PROPERTIES under types of  
ELECTRODES and STEELS and under FILLER METAL, TEE-SECTIONS,  
TITANIUM ALLOYS and WELD DEPOSITS

MELTING PROCESSES -- ELECTRIC FURNACE

9300-1 TM20 HY-130/150

MELTING PROCESSES -- VACUUM ARC

9300-1 TM13 HP150 steel-filler wire system

9300-1 TM20 HY-130/150

Metal-inert-gas welding see WELDING PROCESSES -- MIG (METAL-INERT-GAS)

Metallic arc welding see WELDING PROCESSES -- METALLIC ARC

Metallographic welding inspection see WELDING INSPECTION -- METALLOGRAPHIC

Micro-hardness see HARDNESS

Microscopic welding inspection see WELDING INSPECTION -- METALLOGRAPHIC

Microstructure welding inspection see WELDING INSPECTION -- METALLOGRAPHIC

NASL circular fillet weldability test see CIRCULAR FILLET WELDABILITY  
(NCFW) TEST

NCFW test see CIRCULAR FILLET WELDABILITY (NCFW) TEST

NDT see DROP WEIGHT (NDT)

"NARROW-GAP" WELDS

9300-1 TM12 "Narrow-Gap" welds : HY-80

Navy tear test see TEAR TEST

Nil-ductility transition temperature see DROP WEIGHT (NDT)

NITRIDING

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

Oil inspection of welding see WELDING INSPECTION -- OIL PENETRATION

Optical autocollimation method see AUTOCOLLIMATION METHOD FOR MEASURING  
ANGULAR DISTORTION

OSCILLOGRAPHS

9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

Overhead position welding see WELDING POSITION -- OVERHEAD

## OVERSTRAIN

9300-23 TM5 Overstrain : Residual stresses and fatigue

Oxweld 103 see ELECTRODES -- OXWELD 103

Oxweld L-103 see ELECTRODES -- L-103 OXWELD

PEENING see also SHOT PEENING

9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments

9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit

9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds

9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments

9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment

9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80

9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80

9300-23 TM5 Overstrain : Residual stresses and fatigue

6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds

Permeability indicator see LOW-MU PERMEABILITY INDICATOR

## PICKLING

9300-1 PR2 Pickling and Surface Pitting:HY-80/100

Plate fatigue machines see FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

Pneumatic plate fatigue tests see FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

## POLISHING

9300-23 TM5 Overstrain : Residual stresses and fatigue

## POST-WELD HEAT TREATMENT

FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable steels

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process

6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

## PRIMERS (COATINGS)

6160-7 FR "Blast-Seel" : Wheelabrator Corp. : Pre-weld primer : HY-80

Pulsed arc welding see WELDING PROCESSES -- PULSED ARC

QT-35 see STEELS -- QT-35 (BRITISH), WROUGHT

## QUENCHING

6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

Radiographic welding inspection see WELDING INSPECTION -- RADIOGRAPHIC

## RARE EARTH ADDITION (LAN-CER-AMP)

6285-1 PR1 HY-80 and HY-100 : Weldability

RARE EARTH ADDITION (LAN-CER-AMP) -- CHEMICAL ANALYSIS  
6285-1 PR1 HY-80 and HY-100 : Weldability

Repaired welds see WELDS -- REPAIR

Residual stresses see STRESSES, RESIDUAL

Restraint cracking see CRACKING -- RESTRAINT

RIEHL IMPACT TESTING MACHINE

9300-1 TM17 Cold-forming properties : HY-80 steel tee-section  
extrusions

Rockwell hardness tests see HARDNESS TESTS -- ROCKWELL

Roll formed steel see STEELS -- HY-80, ROLLED; STEELS -- HY-100, ROLLED

Rolled tee-sections see TEE-SECTIONS -- ROLLED

STS see STEELS -- STS, WROUGHT

SANDING

9300-23 TM5 Overstrain : Residual stresses and fatigue

Sea water corrosion see CORROSION (SEA WATER)

Semiautomatic welding see WELDING -- SEMIAUTOMATIC

SHAFTS -- WELDING

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting

SHIELDING GAS -- A405 (LINDE)

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test

9300-1 TM35 NASL circular fillet weldability (NCFW) test

SHIELDING GAS -- ARGON

9300-1 TM50 12% nickel maraging steels : Filler wire system

SHIELDING GAS -- ARGON + 0.1% OXYGEN

9300-1 TM50 12% nickel maraging steels : Filler wire system

SHIELDING GAS -- ARGON + 1% OXYGEN

9300-1 TM13 HP150 steel-filler wire system

9300-1 TM21 12% nickel maraging steel-filler wire system

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test

9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment

Short arc MIG welding see WELDING PROCESSES -- MIG SHORT ARC

SHOT PEENING see also PEENING

9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments  
 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80  
 9300-23 TM5 Overstrain : Residual stresses and fatigue  
 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

Side bend tests see BEND TESTS

STEELS -- CLASS 1, NI-MO (MIL-S-23284)

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

STEELS -- CLASS 1, NI-MO (MIL-S-23284) -- CHEMICAL ANALYSIS

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

STEELS -- CLASS 1, NI-MO (MIL-S-23284) -- MECHANICAL PROPERTIES

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

STEELS -- CLASS AN AND HG (MIL-S-890)

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

STEELS -- CLASS AN AND HG (MIL-S-890) -- CHEMICAL ANALYSIS

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

STEELS -- CLASS AN AND HG (MIL-S-890) -- MECHANICAL PROPERTIES

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
 steel shafting

Steels -- HP 9-4-25 see STEELS -- HY-180/210, WROUGHT

STEELS -- HP-150, WROUGHT

9300-1 TM13 HP150 steel-filler wire system  
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
 Filler wire (LLR1)  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
 strength steels : Controlled thermal severity (CTS) test

STEELS -- HP-150, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM13 HP150 steel-filler wire system  
 9300-1 TM20 HY-130/150  
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
 Filler wire (LLR1)  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
 strength steels : Controlled thermal severity (CTS) test

STEELS -- HP-150, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM13 HP150 steel-filler wire system  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
 strength steels : Controlled thermal severity (CTS) test



# STEELS -- HTS, WROUGHT

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

# STEELS -- HTS, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

# STEELS -- HTS, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

# STEELS -- HY-80, CAST

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds

6285-4 FR Weldability : Cast HY-80

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.

5285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests

6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.

6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests

6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

6285-28 FR Cast HY-80 steel plates : Standard Steel Works

# STEELS -- HY-80, CAST -- CHEMICAL ANALYSIS

9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

6285-4 FR Weldability : Cast HY-80

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.

6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.

6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

6285-28 FR Cast HY-80 steel plates : Standard Steel Works

# STEELS -- HY-80, CAST -- MECHANICAL PROPERTIES

9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

6285-4 FR Weldability : Cast HY-80

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.

6285-19A Cast HY-80 steel plates : Bonney-Floyd Co.

# STEELS -- HY-80, CAST -- MECHANICAL PROPERTIES (continued)

- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY-80 steel plates : Standard Steel Works

# STEELS -- HY-80, FORGED

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

# STEELS -- HY-80, FORGED -- CHEMICAL ANALYSIS

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

# STEELS -- HY-80, FORGED -- MECHANICAL PROPERTIES

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

# STEELS -- HY-80, ROLLED

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

# STEELS -- HY-80, ROLLED -- CHEMICAL ANALYSIS

- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

# STEELS -- HY-80, ROLLED -- MECHANICAL PROPERTIES

- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

# STEELS -- HY-80, WROUGHT

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge
- 9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 : Butt weldments
- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
- 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
- 9300-1 TM12 "Narrow-Gap" welds : HY-80
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee section extrusions
- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM31 Effect of welding : Fatigue properties : HY-100 steel tee-fillet welded plates mechanically peened
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
- 9300-1 TM43 Fatigue life : HY-130/150
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue
- FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable steels
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet weld

## STEELS -- HY-80, WROUGHT (continued)

6160-2 PR1 Welding : Fatigue properties : HY-80  
 6160-2 PR2 Welding : Fatigue properties : HY-80  
 6160-2 PR3 Welding : Fatigue properties : HY-80  
 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate  
 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate  
 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds  
 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars  
 6160-7 FR "Blast-Seal" : Wheelabrator Corp. : Pre-weld primer : HY-80  
 6285-1 PR1 HY-80 and HY-100 : Weldability  
 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties  
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes  
 6285-4 FR Weldability : Cast HY-80  
 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process  
 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process  
 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged arc process  
 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical position : MIG process  
 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing  
 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 : Experimental filler wire 14N : Battelle Memorial Institute  
 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode Oxweld 103 : Linde Co. : Explosion bulge tests

## STEELS -- HY-80, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire : Explosion bulge  
 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments  
 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments  
 9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit  
 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test  
 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds  
 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)  
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes  
 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80  
 6160-2 PR1 Welding : Fatigue properties : HY-80  
 6160-2 PR3 Welding : Fatigue properties : HY-80  
 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate  
 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate  
 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression

STEELS -- HY-80, WROUGHT -- CHEMICAL ANALYSIS (continued)

- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

STEELS -- HY-80, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire : Explosion bulge
- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression
- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged arc process

STEELS -- HY-80 (HIGH CARBON), WROUGHT

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HY-80 (HIGH CARBON), WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HY-80 (HIGH CARBON), WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

## STEELS -- HY-100, ROLLED

- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## STEELS -- HY-100, ROLLED -- CHEMICAL ANALYSIS

- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## STEELS -- HY-100, ROLLED -- MECHANICAL PROPERTIES

- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## STEELS -- HY-100, WROUGHT

- 9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
- 9300-1 PR3 Welding electrodes : HY-100
- 6285-1 PR1 HY-80 and HY-100 : Weldability

## STEELS -- HY-100, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 PR3 Welding electrodes : HY-100
- 6285-1 PR1 HY-80 and HY-100 : Weldability

## STEELS -- HY-100, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 6285-1 PR HY-80 and HY-100 : Weldability

## STEELS -- HY-100, WROUGHT -- WELDMENT CRITERIA

- 9300-1 PR3 Welding electrodes : HY-100

## STEELS -- HY-100 (RARE EARTH ADDITION), WROUGHT

- 6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-100 (RARE EARTH ADDITION), WROUGHT -- CHEMICAL ANALYSIS  
6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-100 (RARE EARTH ADDITION), WROUGHT -- MECHANICAL PROPERTIES  
6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-130/150, WROUGHT

- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
Filler wire (LLR1)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM43 Fatigue life : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress  
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM46 Optical autocollimation method : Stress-relief treat-  
ments : High-strength steel weldments
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
weld metal
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

STEELS -- HY-130/150, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM20 HY-130/150
- 9300-1 TM22 Properties : 130-150,000 psi : Steel weldments : Filler  
wire (LLR1)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress  
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

STEELS -- HY-130/150, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM32 High-strength alloys : Environmental stress cracking

STEELS -- HY-130/150, WROUGHT -- MECHANICAL PROPERTIES (continued)

- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM41 MIG and TIG welding : HY-130/150 steels : As welded :  
Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress  
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

Steels -- HY-150 see STEELS -- HY-130/150, WROUGHT

STEELS -- HY-180/210, WROUGHT

- 9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel  
alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel  
weldment

STEELS -- HY-180/210, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel  
alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel  
weldment

STEELS -- HY-180/210, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel  
alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel  
weldment

STEELS -- HADFIELD, NICKEL MODIFIED

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

STEELS -- HADFIELD, NICKEL MODIFIED -- CHEMICAL ANALYSIS

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

STEELS -- HADFIELD, NICKEL MODIFIED -- MECHANICAL PROPERTIES

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

STEELS -- I-N 100, WROUGHT

- 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
strength steels : Controlled thermal severity (CTS) test



STEELS -- I-N 100, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- I-N 100, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

Steels -- Nitrided see NITRIDING ; Pickling see PICKLING

STEELS -- QT-35 (BRITISH), WROUGHT

6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate

6285-15 FR British steel QT-35 weldments : Explosion bulge testing

STEELS -- QT-35 (BRITISH), WROUGHT -- CHEMICAL ANALYSIS

6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate

6285-15 FR British steel QT-35 weldments : Explosion bulge testing

STEELS -- QT-35 (BRITISH), WROUGHT -- MECHANICAL PROPERTIES

6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate

STEELS -- STS, WROUGHT

9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100

9300-1 TM9 Explosion crack-starter : CVA-66 : STS

9300-1 TM10 Properties : 110-18 : STS : HY-100

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

9300-1 TM35 NASL circular fillet weldability test

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 PR3 Welding electrodes : HY-100

6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation

6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate

6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties

6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

6285-12 PR1 STS weldments : Explosion bulge tests

6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

STEELS -- STS, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM10 Properties : 110-18 : STS : HY-100

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 PR3 Welding electrodes : HY-100

6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter test

## STEELS -- STS, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM10 Properties ; 110-18 : STS : HY-100  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test  
 9300-1 TM35 NASL circular fillet weldability (NCFW) test  
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes  
 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires  
 Steels -- WEL-TEN 100 N see STEELS -- I-N 100, WROUGHT

Steels -- 5% nickel see STEELS -- HY-130/150, WROUGHT

Steels -- 9Ni-4Co see STEELS -- HY-180/210, WROUGHT

## STEELS -- 12% NICKEL MARAGING, WROUGHT

9300-1 TM21 12% nickel maraging steel-filler wire system  
 9300-1 TM44 Screening high-strength steels : Environmental stress cracking  
 9300-1 TM50 12% nickel maraging steels : Filler wire system

## STEELS -- 12% NICKEL MARAGING, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM21 12% nickel maraging steel-filler wire system  
 9300-1 TM44 Screening high-strength steels : Environmental stress cracking  
 9300-1 TM50 12% nickel maraging steels : Filler wire system

## STEELS -- 12% NICKEL MARAGING, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM21 12% nickel maraging steel-filler wire system  
 9300-1 TM44 Screening high-strength steels : Environmental stress cracking  
 9300-1 TM50 12% nickel maraging steels : Filler wire system

## STRAIN GAGES

9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars  
 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments  
 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design  
 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars  
 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars  
 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment  
 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80  
 9300-23 TM5 Overstrain : Residual stresses and fatigue  
 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links  
 6160-2 PR1 Welding : Fatigue properties : HY-80  
 6160-2 PR3 Welding : Fatigue properties : HY-80  
 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression  
 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars  
 6285-4 FR Weldability : Cast HY-80

Strain indicators see BALDWIN, MODEL 120, STRAIN INDICATOR; BALDWIN, TYPE N, STRAIN INDICATOR

## STRESS CORROSION

- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-1 TM44 Screening high-strength steels : Environmental stress  
cracking
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

Stress corrosion screening test see ENVIRONMENTAL STRESS CORROSION SCREEN-  
ING TEST

Stress cracking test, Environmental see TEAR TEST

## STRESS RELIEVING

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel  
tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section  
extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel  
tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical  
properties : HY-100 steel tee-beams hot rolled, extruded and cold-  
formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
relieved
- 9300-1 TM46 Optical autocollimation method : Stress-relief treatments :  
High-strength steel weldments
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
weld metal
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting
- 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :  
Experimental filler wire 14N : Battelle Memorial Institute

## STRESSES, RESIDUAL

- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel  
tee-bars
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-1 TM46 Optical autocollimation method : Stress-relief treatments :  
High-strength steel weldments
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :  
Compression
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

## STRESSES, RESIDUAL -- MEASUREMENT -- HOLE DRILLING METHOD

- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue

Submerged arc welding see WELDING PROCESSES -- SUBMERGED ARC

TIG welding see WELDING PROCESSES -- TIG (TUNGSTEN-INERT-GAS)

TEAR TEST see also ENVIRONMENTAL STRESS CORROSION SCREENING TEST

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

Tee-bars see TEE-SECTIONS

Tee-beams see TEE-SECTIONS

TEE-FILLET WELDS see also FILLET WELDS

- 9300-1 TM18 Grinding ; Shot peening : Fatigue life : Tee weldments
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
Sea water environment
- 9300-1 TM46 Optical autocollimation method : Stress-relief treatments :  
High-strength steel weldments
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet weld
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :  
Compression
- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate  
butt welds : Peened tee-fillet : Ground tee-fillet welds

## TEE-SECTIONS -- CAST

- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section  
single and double weld joint design
- 6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

## TEE-SECTIONS -- EXTRUDED

- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 :  
Tee-bars
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel  
tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions

## TEE-SECTIONS -- EXTRUDED (continued)

9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed

9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars

6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.

6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests

6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

## TEE-SECTIONS -- EXTRUDED -- CHEMICAL ANALYSIS

6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

## TEE-SECTIONS -- EXTRUDED -- MECHANICAL PROPERTIES

9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions

9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed

9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars

6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.

6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests

6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

## TEE-SECTIONS -- ROLLED

9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars

9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars

9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed

6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests

## TEE-SECTIONS -- ROLLED -- MECHANICAL PROPERTIES

- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests

## TEE WELDS

- 9300-1 TM42 MIG welding : HY-130/150
- 6160-2 PR2 Welding : Fatigue properties : HY-80
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

## TEMPERING

- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

## TENSILE PROPERTIES see also subdivision MECHANICAL PROPERTIES under types of ELECTRODES and STEELS

- 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (ILR1)
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM28 HY 180/210 : HP 9-4-25 weld deposit
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate

## TENSILE PROPERTIES (continued)

- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :  
Compression
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge  
tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding  
process
- 6285-5S FR Explosion bulge performance : Mechanical properties :  
HY-80 weldments : Electro-slag process
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : S plate
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion  
crack-starter tests
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A Cast HY-80 steel plates : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack starter)
- 6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode  
(Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. :  
Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet :  
Curtiss-Wright Corp., Metals Processing Division : Explosion  
bulge tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Process-  
ing Division : Isaacson Iron Works : Forged billet : Explosion  
bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.
- 6285-25 FR HY-100 : Rolled steel : Armco-Sheffield steel
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals  
Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY 80 steel plates : Standard Steel Works

Thermal cracking see CRACKING -- THERMAL

Thermal treatment, Post-weld see POST-WELD HEAT TREATMENT

## TITANIUM ALLOYS -- Ti-6Al-2.25Mo

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

## TITANIUM ALLOYS -- Ti-6Al-2.25Mo -- CHEMICAL ANALYSIS

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

## TITANIUM ALLOYS -- Ti-6Al-2.25Mo -- MECHANICAL PROPERTIES

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

## TITANIUM ALLOYS -- Ti-721

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

## TITANIUM ALLOYS -- Ti-721 -- CHEMICAL ANALYSIS

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

## TITANIUM ALLOYS -- Ti-721 -- MECHANICAL PROPERTIES

9300-1 TM32 High-strength alloys : Environmental stress cracking

## TORSION

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting

Toughness tests see CHARPY V NOTCH

## TRITHERMAL WELDS

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

Tungsten-inert-gas welding see WELDING PROCESSES -- TIG (TUNGSTEN-INERT-GAS)Ultrasonic welding inspection see WELDING INSPECTION -- ULTRASONICUndercut welds see WELDS -- UNDERCUTVacuum arc melting see MELTING PROCESSES -- VACUUM ARCVertical position welding see WELDING POSITION -- VERTICALVickers hardness tests see HARDNESS TESTS -- VICKERSWEL-TEN 100 N see STEELS -- I-N 100, WROUGHTWELD DEPOSITS see also ELECTRODES; FILLER METAL

9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :

Butt weldments

9300-1 TM10 Properties : 110-18 : STS : HY-100

9300-1 TM28 HY 180/210 : HP 9-4-25 weld deposit

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits

9300-1 TM35 NASL circular fillet weldability (NCFW) test

9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved

9300-1 TM42 MIG welding : HY-130/150

9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and weld metal

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 TM50 12% nickel maraging steels : Filler wire system

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate

6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties

6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical position : MIG process



**WELD DEPOSITS (continued)**

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

**WELD DEPOSITS -- CHEMICAL ANALYSIS**

- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR3 Welding electrodes : HY-100
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process

**WELD DEPOSITS -- MECHANICAL PROPERTIES**

- 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

Weld metal see WELD DEPOSITS

Weldability: see appropriate steel alloys

**WELDING -- AUTOMATIC**

- 9300-1 TM12 "Narrow-Gap" welds : HY-80
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

## WELDING -- SEMIAUTOMATIC

9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire  
 6285-12 PR1 STS weldments : Explosion bulge tests  
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

## WELDING INSPECTION -- MAGNETIC PARTICLE

9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 : Butt weldments  
 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80  
 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments  
 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)  
 9300-1 TM10 Properties : 110-18 : STS : HY-100  
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)  
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (LLR1)  
 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80  
 9300-1 TM35 NASL circular fillet weldability (NCFW) test  
 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments  
 9300-1 TM42 MIG welding : HY-130/150  
 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)  
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150  
 9300-1 PR3 Welding electrodes : HY-100  
 6160-2 PR2 Welding : Fatigue properties : HY-80  
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes  
 6285-4 FR Weldability : Cast HY-80  
 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process  
 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate  
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests  
 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing  
 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 : Experimental filler wire 14N : Battelle Memorial Institute  
 6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode (Oxweld 103) : Linde Co. : Explosion bulge tests

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9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test  
 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments  
 9300-1 TM50 12% nickel maraging steels : Filler wire system  
 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting  
 6160-2 PR2 Welding : Fatigue properties : HY-80  
 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression  
 6285-1 PR1 HY-80 and HY-100 : Weldability  
 6285-4 FR Weldability : Cast HY-80  
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

## WELDING INSPECTION -- OIL PENETRATION

- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-23 TM5 Overstrain : Residual stresses and fatigue

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- 9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 : Butt weldments
- 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
- 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-6 PR2 Notch-toughness properties : MIL260 welds : STS plate
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing

## WELDING INSPECTION -- ULTRASONIC

- 6160-2 PR2 Welding : Fatigue properties : HY-80
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression

## WELDING POSITION -- FLAT

- 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and weld metal
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

## WELDING POSITION -- HORIZONTAL

- 6160-7 FR "Blast-Seel" : Wheelabrator Corp. : Pre-weld primer : HY-80
- 6285-9 FR Notch-toughness properties : Welds : CVA-6<sup>3</sup> (Kitty Hawk)

## WELDING POSITION -- OVERHEAD

9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80  
 9300-1 TM42 MIG welding : HY-130/150  
 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)  
 6285-12 FR Notch-toughness properties : STS weldments : Explosion  
 crack-starter tests

## WELDING POSITION -- VERTICAL

9300-1 TM3 Short arc MIG : Vertical position welding : HY-80  
 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress  
 relieved  
 9300-1 TM42 MIG welding : HY-130/150  
 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
 weld metal  
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150  
 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical  
 position : MIG process

## WELDING POSITION -- VERTICAL-DOWN VS. VERTICAL-UP

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

Welding processes -- Covered electrode see ELECTRODES -- COVERED

## WELDING PROCESSES -- ELECTRO-SLAG

6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding  
 process  
 6285-5S FR Explosion bulge performance : Mechanical properties :  
 HY-80 weldments : Electro-slag process

## WELDING PROCESSES -- FLASH BUTT

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

WELDING PROCESSES -- MIG (METAL-INERT-GAS) see also WELDING PROCESSES --  
MIG SHORT ARC; SHIELDING GAS

9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire  
 9300-1 TM9 Explosion crack-starter : CVA-66 : STS  
 9300-1 TM12 "Narrow-Gap" welds : HY-80  
 9300-1 TM13 HP-150 steel-filler wire system  
 9300-1 TM21 12% nickel maraging steel-filler wire system  
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :  
 Filler wire (LLR1)  
 9300-1 TM23 Welding : HY-100  
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield  
 strength steels : Controlled thermal severity (CTS) test  
 9300-1 TM35 NASL circular fillet weldability (NCFW) test  
 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :  
 Sea water environment  
 9300-1 TM41 MIG and TIG welding : HY-130/150 : As-welded : Stress  
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 9300-1 TM42 MIG welding : HY-130/150  
 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)  
 9300-1 TM46 Optical autocollimation method : Stress-relief treat-  
 ments : High-strength steel weldments  
 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
 weld metal  
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

## WELDING PROCESSES -- MIG (METAL-INERT-GAS) (continued)

9300-1 TM51 Corrosion Fatigue : Stress corrosion properties:  
HY-130/150

9300-1 PR3 Welding Electrodes : HY-100

9300-1 PR4 Weldability : HY-130/150 : MIG filler wires

6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical  
position : MIG process

6285-12 PR1 STS weldments : Explosion bulge tests

6285-12 FR Notch-toughness properties : STS weldments : Explosion  
crack starter tests

## WELDING PROCESSES -- MIG SHORT ARC

9300-1 TM3 Short arc MIG : Vertical position welding : HY-80

9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80

9300-1 TM50 12% nickel maraging steels : Filler wire system

## WELDING PROCESSES -- METALLIC ARC

9300-1 TM35 NASL circular fillet weldability (NCFW) test

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

## WELDING PROCESSES -- PULSED ARC

9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

Welding processes -- Short arc MIG see WELDING PROCESSES -- MIG SHORT ARC

## WELDING PROCESSES -- SUBMERGED ARC

9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire :  
Explosion bulge

6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged  
arc process

6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :  
Experimental filler wire 14N : Battelle Memorial Institute

6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode  
(Oxweld 103) : Linde Co. : Explosion bulge tests

## WELDING PROCESSES -- TIG (TUNGSTEN-INERT-GAS)

9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit

9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits

9300-1 TM41 MIG and TIG welding : HY-130/150 : As-welded : Stress  
relieved

9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and  
weld metal

9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type  
steel weldment

9300-1 TM50 12% nickel maraging steels : Filler wire system

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Welding rod see ELECTRODES; FILLER METAL

Welds -- Backing straps see BACKING STRAPS

Welds -- Bithermal see BITHERMAL WELDS

Welds -- Butt see BUTT WELDS

Welds -- Fillet see FILLET WELDS

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- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire :  
Explosion bulge
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As-welded : Stress  
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and  
fillet weld

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Welds -- "Narrow-Gap" see "NARROW-GAP" WELDS

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- 9300-23 TM5 Overstrain : Residual stresses and fatigue
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum  
steel shafting
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and  
fillet weld
- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion  
crack-starter tests

Welds -- Tee see TEE WELDS

Welds -- Tee-fillet see TEE-FILLET WELDS

Welds -- Trithermal see TRITHERMAL WELDS

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- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and  
fillet weld
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding  
process

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9300-1 TM49  
Air Reduction Sales Co.  
9300-1 PR3  
6285-10 FR  
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9300-1 TM29  
9300-1 TM35  
9300-1 TM42  
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6160-1 PR1  
6285-4 FR  
6285-12 FR  
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6285-13 FR  
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6285-27 FR  
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6285-23 PR2  
  
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6285-17 FR  
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6285-14 FR  
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6285-19A FR  
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9300-39 PR2  
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6285-23 PR1  
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9300-1 TM13  
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## Sheffield Division, Armco Steel Corp.

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6160-7 FR

## Yawata Iron and Steel Co.

9300-1 TM8  
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UNCLASSIFIED

Security Classification

## DOCUMENT CONTROL DATA - R &amp; D

(Security classification of title, body, abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Naval Applied Science Laboratory Flushing and Washington Avenues Brooklyn, New York 11251		2a. REPORT SECURITY CLASSIFICATION <b>UNCLASSIFIED</b>	
3. REPORT TITLE  Bibliography and Index of Naval Applied Science Laboratory Technical Reports on High Strength Steels		2b. GROUP	
4. DESCRIPTIVE NOTES (Type of report and, inclusive dates) Lab. Project 9300-1, Progress Report 5, 1959-1966			
5. AUTHOR(S) (First name, middle initial, last name) Frank Ginsberg Irving L. Stern			
6. REPORT DATE 14 February 1967	7a. TOTAL NO. OF PAGES 60	7b. NO. OF REFS -	
8a. CONTRACT OR GRANT NO.  b. PROJECT NO. 9300-1 Task Area SF-020-01-01, Work Unit 0722 Task Area SF-020-01-02, Work Unit 0855 Task Area SF-013-03-02, Work Unit 2025		9a. ORIGINATOR'S REPORT NUMBER(S)  9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) -	
10. DISTRIBUTION STATEMENT  Distribution of this document is unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Naval Ship Systems Command Washington, D. C. 20360	
13. ABSTRACT  A bibliography and subject index have been prepared of Naval Applied Science Laboratory technical reports covering pertinent information on 80,000 psi to 210,000 psi yield strength steels, with emphasis on HY-80 and HY-130 weldments. Work in these reports deals with transfer of basic laboratory data to production applications. Primary areas of concern are weldability, welding procedures and materials, static and dynamic mechanical properties (including large scale fatigue), explosion bulge, forming, stress relieving and residual stresses.			

DD FORM 1473

(PAGE 1)

3/N 0101-807-8811

UNCLASSIFIED  
Security Classification

A-91409

UNCLASSIFIED

Security Classification

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Naval Applied Science Laboratory Technical Reports Bibliography Subject Index 80,000 psi to 210,000 psi Yield Strength Steels HY-80 Weldments HY-130 Weldments Weldability Welding Procedures Static and Dynamic Mechanical Properties Explosion Bulge Forming Stress Relieving Residual Stress						